

PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in Toy Liquid Discharge Guns for Children

We, THE CRESCENT TOY COMPANY LIMITED, a company organized under the laws of England, and ARTHUR ALBERT SCHREIDER, a British Subject, both of 6/8, 5 Fountayne Road, South Tottenham, London, N.15, do hereby declare the nature of this invention to be as follows:

This invention relates to toy guns for children, from which liquid may be discharged in light sprays and has for its object to simplify and improve the construction of such toy guns so that they can be readily re-set for repeated discharge without risk either to the user or others.

According to this invention a toy gun of the kind referred to comprises a cylindrical stock adapted to form a reservoir for the water or other liquid to be discharged and is provided with an extension adapted to form the butt or handle of the gun and the support and housing for the trigger mechanism, which is interconnected with the reservoir and with the barrel that terminates in a nozzle through which the liquid is sprayed when the gun is discharged.

In one convenient construction the stock is open at one end and provided with a removable cap for sealing the open end, while the interior of the stock is sub-divided by a partition so as to form a passage which terminates in a socket adapted to receive the spigot end of the gun barrel which is screwed or otherwise secured therein and terminates at its outer end in a spraying nozzle, while the other end of such passage terminates in an outlet which communicates with a chamber formed in the butt or handle of the gun for housing the trigger mechanism, the socket being also provided with a second outlet generally parallel with the first outlet, which also leads to the trigger chamber through a valve mounted in the end thereof.

The trigger chamber arranged in the stock or handle of the gun is substantially parallel with the stock and barrel of the gun, while

the trigger is in the form of a plunger furnished with suitable packing and provided with a reduced extension that slides through a reduced extension of the trigger chamber, the outer end of such trigger extension being furnished with a fixed curved lever or finger piece.

The trigger chamber extends to the rear of the butt or handle of the gun and is closed at its rear end by means of a plug furnished with a valve which controls the connection between the trigger chamber and the main body of the interior of the stock forming the liquid magazine of the gun.

The plunger forming the trigger mechanism is controlled by a coiled spring mounted on an extension of the plunger at one end and also at its other end upon a support carried by the valve plug which closes the rear end of the trigger chamber.

The cylindrical stock is filled with water and sealed by means of its detachable cap which is furnished with suitable packing for this purpose. The spring-controlled plunger forming the trigger is then depressed or forced inwards and released so that the trigger is returned by its spring pressure to its normal position and thus draws water through the outlet controlled by the valve at the rear end of the trigger chamber into the latter, thus priming the gun.

On drawing back the trigger plunger against the resistance of its spring, the pressure of the water closes the non-return valve at the rear end of the trigger chamber and forces the same through the aperture leading to the passage with which the barrel of the gun is connected so that it is discharged from the nozzle end of such barrel under pressure as a fine spray.

On releasing the trigger the latter is again returned by the spring to its normal position, so re-priming the gun for the next discharge when the operation can be repeated until most of the water is discharged from the

magazine formed by the stock of the gun.

The improved gun may be made in any convenient manner as for example by casting, and may be made in various sizes and shaped, and ornamented as desired.

Dated this 15th day of January, 1948.

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Chartered Patent Agents.

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Agents for the Applicants.

COMPLETE SPECIFICATION

Improvements in Toy Liquid Discharge Guns for Children

We, THE CRESCENT TOY COMPANY LIMITED, a company organized under the laws of England, and ARTHUR ALBERT SCHNEIDER, a British Subject, both of 6/8, Fountayne Road, South Tottenham, London, N.15, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

This invention relates to toy guns for children, from which liquid may be discharged in light sprays and has for its object to simplify and improve the construction of such toy guns so that they can be readily re-set for repeated discharge without risk either to the user or to others.

According to this invention a toy gun of the kind referred to comprises a gun body in which is a large chamber divided by an internal wall into a reservoir for the liquid to be discharged and a narrow passage connected to the barrel of the discharge nozzle of the gun, and a piston operatively connected with a trigger and mounted in a cylindrical chamber also within the gun body and dimensioned to hold a small charge of liquid, the passage being connected to one end of the cylindrical chamber and the reservoir being connected through a non-return valve to the same end, away from which end the piston is urged by spring means so that operation of the trigger against the spring action discharges liquid in the cylindrical chamber from the gun whereafter release of the trigger causes the piston to return under the spring action and to recharge the cylindrical chamber with fluid from the reservoir.

The invention is further described with reference to the accompanying drawings in which similar references indicate like parts.

Figure 1 is an external side view, Figure 2 a front end view, and Figure 3 a longitudinal sectional view illustrating one convenient construction of toy water gun embodying the features of the present invention, while Figure 4 is a detail view drawn to a larger scale further illustrating the spring-controlled trigger and valve mechanism shown in Figure 3.

In the construction illustrated, the body of the gun is formed in cast metal and comprises a cylindrical stock 1, formed with an

open end 1a and having an external downward extension 1b that terminates in the butt or hand grip 1c of the gun.

The interior of the stock is sub-divided at its forward end by a trough-shaped internal partition 3, so as to form a passage, the forward end of which terminates in a socket 4 formed in the front end wall of the stock 1 which also is provided with an internal collar 4a (Figure 3) while the passage formed by the trough-shaped partition 3 is closed by its inclined end wall 3a, see Figure 3, and is provided with a passage 3b (Figure 3) adjacent to the inclined end wall 3a.

The interior of the stock 1x is adapted to form the reservoir for the water or other liquid to be sprayed from the gun, the open end of the stock being furnished with a removable plug cap 5, having a reduced inner end 5a with parallel sides. The inner end 5a is furnished with a rubber or other packing ring 5b conveniently housed in an annular recess 5c formed in the outer surface of the end of the plug cap. The interior 1x of the stock is provided with an outlet passage 1y adjacent to the inclined end wall 3a of the trough-shaped partition 3 within the stock, while the socket 4 formed in the front end wall of the stock 1 is adapted to receive the shouldered spigot end 7a of the gun barrel 7 which may be screwed or otherwise secured in the socket 4, while its outer end terminates in a spray head 7b.

The extension 1b of the stock 1 is recessed as indicated at 8 to form a cylindrical housing having an open end that is sealed by means of a removable plug 9, the head 9a of which projects beyond the recess 8 in which is housed the spring-controlled trigger and valve mechanism.

The trigger is in the form of a plunger 10, which as shown comprises a packing ring 11 secured between a pair of collars 11a and 11b, the collar 11b making a sliding fit in the recess 8, while the collar 11a is slightly less in diameter and also serves to take the thrust of the adjacent end of the coiled spring 12 carried by the inner end of the trigger plunger, the other end of the spring 12 being carried on a nut 13, see Figure 4, which is secured on the reduced inner end 9b of the plug 9 of the trigger mechanism housing 8.

The reduced end 9b of the plug also carries a centrally perforated rubber or other suitable

disc 14 which seats against the inner face of the plug 9 and forms a valve member which closes the outer ends of a series of longitudinal perforations 9c formed through the inner end of the plug 9 so as to terminate in an external annular groove 9d formed in the circumference of the body of the plug 9.

The annular groove 9d of the plug 9 registers with the outlet passage 1y of the liquid reservoir formed by the interior 1x of the gun stock 1, in which latter an air inlet or vent 1z, Figure 3, is formed to maintain the atmospheric pressure within the liquid reservoir; while the passage 3b leading from the valve trigger recess 3 to the gun barrel 7, is shut off from the liquid reservoir by the non-return disc valve 14 mounted on the reduced inner end 9b of the trigger housing plug 9.

The trigger plunger comprises a reduced extension 10a which works through a bore 16a in the extension 16 and is provided at its outer end with a fixed finger grip 10b; so that the butt or handle 17 of the gun forms an abutment for the user's hand, as his fingers pull on the finger grip of the trigger.

The reservoir 1x in the stock 1 is charged with the liquid to be sprayed, after removing the cap 5a therefrom, which is then securely replaced.

The gun is then primed with a charge of liquid by operating the trigger plunger against the resistance of the control spring 12, the user then releasing the trigger plunger which is immediately returned by the spring, the consequential fall of internal pressure in the trigger housing enabling liquid from the reservoir 1x to pass the trigger valve 14 into the interior of the trigger housing and the barrel of the gun connected therewith, so that on the next operation of the trigger plunger against its controlling spring, the priming liquid is sprayed from the nozzle of the gun under pressure, the gun being re-primed as the trigger plunger is again returned to its normal position by its spring; the cycle of

operations can be maintained until the liquid in the reservoir has been discharged. On return of the trigger plunger to its normal position water from reservoir 1x rather than air from the barrel is drawn into recess 8 due to the fact that the passage 1y has a considerably greater cross-sectional area than that of the discharge aperture in the spray head 7b.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:

1. A toy gun of the kind referred to comprising a gun body in which is a large chamber divided by an internal wall into a reservoir for the liquid to be discharged and a narrow passage connected to the barrel of the discharge nozzle of the gun, and a piston operatively connected with a trigger and mounted in a cylindrical chamber also within the gun body and dimensioned to hold a small charge of liquid, the passage being connected to one end of the cylindrical chamber and the reservoir being connected through a non-return valve to the same end, away from which end the piston is urged by spring means so that operation of the trigger against the spring action discharges liquid in the cylindrical chamber from the gun whereafter release of the trigger causes the piston to return under the spring action and to recharge the cylinder chamber with liquid from the reservoir.

2. A toy water gun of the kind referred to, made, arranged and adapted to operate substantially as and for the purposes hereinbefore described and illustrated in the accompanying drawings.

Dated this 20th day of January, 1949.

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14, Bedford Row, London, W.C.1.,
Agents for the Applicants.

This Drawing is a reproduction of the Original on a reduced scale.

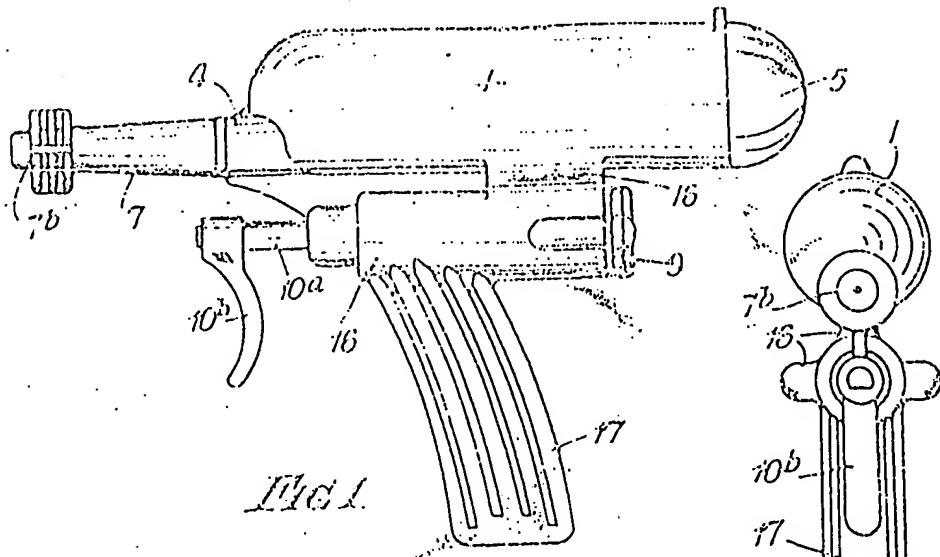


FIG. 1

FIG. 2

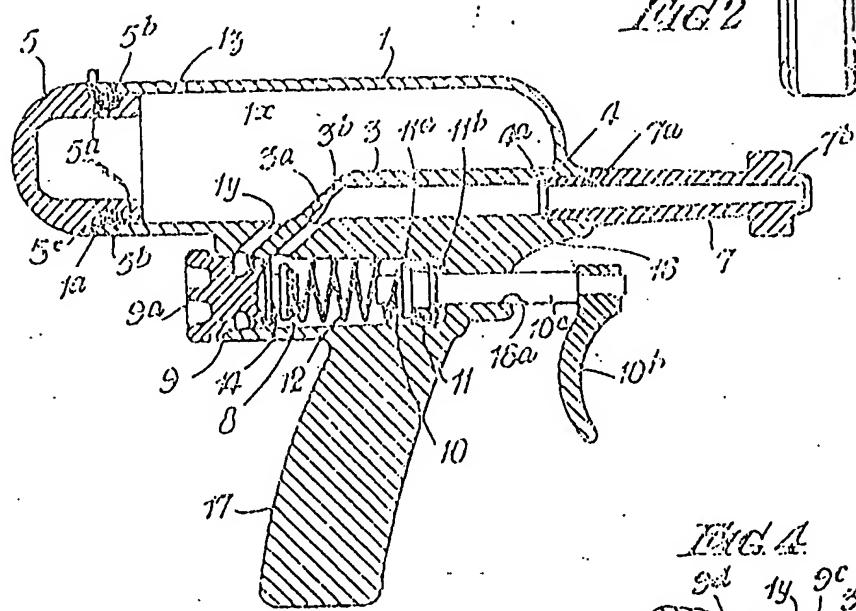


FIG. 3

